

REMARKS

Claims 1-8 remain pending after amendment. Claims 1-3 are amended.

Claim Amendments

Various editorial amendments are made in claims 1-3. Also, the relative positioning of the standing gathers is added to claim 1 consistent with Figure 1. No new matter is added by this amendment.

Allowed Claims

Applicants thank the Examiner for the indication of allowance of claims 6-8. However, for the reasons indicated in detail below, pending claims 1-5 are also believed to define patentable subject matter.

Applicants' Invention

Applicants' invention is directed to a disposable diaper of a flat type. The claimed diaper is particularly easy to apply to a wearer who is in a standing position.

A significant aspect of the claimed invention is that the standing gathers on each side are fixed at an extension ratio of 100% or higher, and the tensile characteristics of the standing gathers on each side measured in their state not fixed to the diaper are such that the tensile load required to extend to an effective extension ratio is 20 to 120 cN and that the increase rate of tensile load required for extending from an extension ratio of 20% up to the effective extension

ratio is 1.0 cN/% or lower, the effective extension ratio being 30% lower than the fixing extension ratio.

Since the present invention satisfies the above limitation, especially taken together with the limitation of the bending stiffness of the absorbent member due to the presence of a low stiffness region having a bending stiffness of 25 cN/50mm or lower, it is remarkably easy to put the disposable diaper on a wearer in a standing posture.

That is, when disposable diapers of the flat type are placed on the wearer in a standing position, the crotch portion of the wearer is extremely narrow when compared with the case when putting on a diaper in a prone position. This is because the legs when in a standing position are not widely spaced unlike the case of a wearer lying on his or her back when the legs can be spread more widely. In addition, in order to put on a diaper adequately in a standing position, it is necessary to pull up the diaper which has been inserted into the narrow crotch portion of the wearer into a fitted position, while keeping the diaper curved into a U-shape in the longitudinal direction to some extent.

In this situation, when a diaper is provided with standing gathers, the gathers touch the wearer's thighs and impede diapering. It follows then that the diaper will fail to be properly applied to the fitted position.

In addition, in the case of the use of conventional gathers, the standing gathers fall or bend upon contacting the skin of the wearer when putting on a diaper in a standing position. A gap can thus form between the free end of the gathers and the skin of the wearer, through which body waste may easily leak.

It has been difficult for conventional diapers to solve the above problems, particularly with respect to the putting on of the diaper while the wearer is in a standing position.

The present invention succeeds in solving the above problems by providing standing gathers which extend with smaller force than that of the standing gathers of conventional diapers *(the increase rate of tensile load required for extending from an extension ratio of 20% up to the effective extension ratio is 1.0 cN/% or lower)* and have a higher extension ratio than that of the standing gathers of conventional diapers *(an extension ratio of 100% or higher)*.

As a result, when putting a diaper on a wearer in the standing position, since the standing gathers of the present invention tend to appropriately contract while the diaper curves into a U-shape in the longitudinal direction, the gathers rise up while putting on the diaper, and those free ends naturally move toward the appropriate position during wear. Thus, the standing gathers are prevented from falling or bending when putting on the diaper.

In addition, in a circumstance where the diaper is pressed against the skin of the wearer, the standing gathers extend, and the elastically restoring force works to separate the diaper from the wearer. However, in the present invention, since the gather has a small increase rate of tensile load, the force for separating the diaper from the wearer is weak, even in a condition where the diaper is pressed against the skin of the wearer to some extent. Thus, the standing gather of the present invention seldom inhibits smooth or comfortable wearing of the diaper.

The claimed invention is neither disclosed nor suggested by the cited prior art.

Rejection of Claims 1-3

Claims 1-3 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Watanabe et al '649 in view of Okuda et al '140. This rejection respectfully is traversed:

Watanabe is directed to disposable diapers including a body having a liquid impermeable topsheet, a liquid impermeable backsheet, and an absorbent member interposed therebetween.

The Examiner infers that the sole difference between the Watanabe et al reference and the claimed invention is that Watanabe does not “expressly teach a fastening tape on each side edge or low and high stiffness regions”. While not so expressly stated by the Examiner, Watanabe does not appear to teach the laterally-extending wasteband portions either, or the cooperative attaching means 10 and 20.

However, more importantly, Watanabe et al does not teach or suggest the most significant aspect of the claimed invention which is that:

the standing gathers on each side are fixed at an extension ratio of 100% or higher, and the tensile characteristics of the standing gathers on each side measured in their state not fixed to the diaper are such that the tensile load required to extend to an effective extension ratio is 20 to 120 cN, and

the increase rate of tensile load required for extending from an extension ratio of 20% up to the effective extension ratio is 1.0 cN/% or lower, the effective extension ratio being 30% lower than the fixing extension ratio.

Absent such a teaching, Watanabe et al cannot suggest the claimed invention.

The Examiner states at page 2 of the Action that Watanabe teaches standing gathers “having elastic members 11a and 11b having a fixing/stretching ratio of 150% (figure 1 and col. 4, lines 64-66).” However, even assuming that Watanabe teaches a standing gather “fixed at an

extension ratio of 100% or higher,” the reference is silent with respect to applicants’ tensile load and increase in rate of tensile load, and effective extension ratio characteristics.

In an attempt to more clearly define over Watanabe, claim 1 is amended to clarify that the standing gathers are formed along the longer sides of the diaper “positioned in spaced parallel relationship to each other along said crotch portion”. By contrast, Figure 1 of the reference teaches the gathers 11a in a curved relationship to the cut-out portion for the leg. Compare the Watanabe configuration to that of gathers 61 in applicants’ Figure 1.

The cited Okuda reference does not cure the deficiencies of Watanabe et al. Okuda is cited to teach the use of a fastening tape and low and high stiffness portions.

With regard to the stiffness portions, the Examiner takes the position that Okuda teaches a high stiffness portion, and that accordingly, all other portions must then be of lower stiffness, so that low stiffness portions are asserted to be necessarily present.

The Examiner also takes the position that it would have been obvious to combine “the extensible side part 8a, fixing/stretching ratio of 150%, tensile load and rate of increase of Watanabe et al with the low and high stiffness regions of Okuda et al to obtain the claimed structure since both references disclose disposable diapers with leg elastic members for improved article fit about a wearer during use.”

However, the combined teachings of the cited references do not render obvious the limitations of the rejected claims in the manner asserted by the Examiner.

As noted by the Examiner at page 4 of the Action, Okuda et al fails to disclose or suggest the tensile load required to extend the gathers, or the rate of increase of the tensile load of the gathers.

With regard to the “standing gathers” limitation, it is important that the standing gathers stand upright sufficiently to maintain sufficient space for preventing leakage even when the crotch portion somewhat bunches up. See page 17, bottom paragraph, of the specification in this regard. Note also applicants’ Figure 2 which depicts the standing gathers “6” which are maintained in a spaced relationship from the absorbent body. Figure 1 depicts the standing gathers “6” in a top view.

Watanabe et al fails to disclose or suggest the standing gathers “6” of applicants’ Figures 1 and 2. Compare Figures 1 and 3 of Watanabe et al in this regard. While Okuda et al discloses upstanding guard 6, the reference is silent with regard to the degree of stretching of the guard (applicants require standing gathers fixed at an extension ratio of 100% or greater).

It is thus clear that, taken either singly or together, the cited references fail to disclose or suggest the claimed invention. The Examiner fails to point to any portions of the cited references which would provide the requisite motivation to result in the claimed invention by combination of the teachings thereof.

The rejection is accordingly without basis and should be withdrawn.

Rejection of Claims 4-5

Claims 4-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Watanabe et al ‘649 in view of Okuda ‘140 and St. Louis et al ‘433. This rejection respectfully is traversed to the extent deemed to apply to the claims as amended.

St. Louis is cited to teach the respective dimensions of claims 4 and 5. However, even assuming that the St. Louis reference teaches that which the Examiner asserts, the reference does not otherwise cure the deficiencies of Watanabe et al or Okuda.

The rejection is thus without basis and should be withdrawn.

Double Patenting Rejection

Claims 1-4 and 6-8 stand provisionally rejected on the ground of obviousness-type double patenting over claims 1, 2, 3, 5, 7, 8 and 9 of copending application No. 10/626,547.

As this is a provisional rejection, no action on the part of applications is required. However, applicants will endeavor to maintain a line of distinction between the respective claims.

In view of the above, the application is believed to be in condition for allowance, and an early indication of same is earnestly solicited.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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